

## **REMARKS**

In accordance with the foregoing, claims 2, 6, and 8 are cancelled, claims 1, 3-5, 7, and 9 are amended, and new claims 10-15 are added. No new matter is presented, and accordingly approval and entry of the foregoing amended and added claims are respectfully requested.

Claims 1, 3-5, 7, and 9-15 are pending and under consideration.

As set forth below, it is submitted that these claims clearly patentably distinguish over the art of record.

## **CLAIM AMENDMENTS**

Claims 1, 3-5, 7, and 9 are amended to clarify that the apparatus is a "wavelength multiplexing optical apparatus." That is, aspects of the present invention are applicable to a transmitting side (See FIG. 4, described on pages 7-8, starting at line 13) and a receiving side (See FIG. 9, described on pages 11-12, starting at line 32), of an apparatus.

Claim 3 is also amended to clarify that the apparatus includes a "second output port outputting a pilot signal input from an input port, wherein said first group of optical signals and said pilot signal are transmitted by a common arrayed-waveguide." As discussed in the application, and shown in FIGs. 12 and 13, a multiplexing system and a pilot system are combined with the same arrayed waveguide. (See pages 13-14, starting at line 29 and FIG. 12).

No new matter is presented in any of the foregoing and, accordingly, approval and entry of the amended claims are respectfully requested.

## **NEW CLAIMS 10-15**

New claims 10-15 present no new matter and are provided to afford a varying scope of protection. New claims 10-15 recite a wavelength multiplexing optical apparatus including a light emitter and a light detector, as illustrated for example, in FIGs. 4 and 9-13.

## **PAGE 2: REJECTION OF CLAIM 3 AS INDEFINITE UNDER 35 U.S.C. §112, SECOND PARAGRAPH**

Claim 3 is rejected under 35 U.S. C. §112 as being indefinite. The Examiner contends that it is not clear "whether the first group of optical signals are different from the second group of optical signals. " (Action at page 2).

Claim 3 is amended to clarify that the apparatus includes a "first output port outputting the multiplexed signal carrying the first group of optical signals of different wavelengths respectively input from input ports, and a second output port outputting a pilot signal from an input port."

Withdrawal of the rejection of claim 3 is respectfully requested.

**ITEM 2: REJECTION OF CLAIMS 1 and 3 UNDER 35 U.S.C. §102(e) BY VAN DOORN ET AL. (U.S.P. 6,477,294)**

Anticipation (§102) requires that each element or limitation as set forth in a claim be described in a single prior art reference i.e. *In re Robertson*, 49 USPQ 2d 1949 (Fed. Cir. 1999). Van Doorn et al. does not adequately support an anticipatory-type rejection by not describing elements recited in the present application's independent claims.

**MONITORING PILOT SIGNAL IN MULTIPLEXED SIGNAL NOT DESCRIBED BY VAN DOORN**

Independent claim 1 recites a light detecting means for monitoring the pilot signal contained in a wavelength multiplexed signal output from the output port. The Examiner only contends that Van Doorn describes a "light detecting means 6."

However, Van Doorn does not describe any monitoring of a pilot signal contained in output multiplexed signals. The "light detecting means 6" cited by the Examiner is instead described in Van Doorn as (col. 3, lines 18-21):

drawn line characteristic is such that an accurate and selective temperature error signal can be derived by the measuring means 6. The amplitude or output power of the output signal in the additional path is determined by a measuring means 6.

Since this feature of claim 1 is not described in Van Doorn, Applicants request the rejection of claim 1 be withdrawn.

**COMMON ARRAYED WAVEGUIDE NOT DESCRIBED BY VAN DOORN**

Independent claim 3 recites an apparatus including a first output port outputting multiplexed signal carrying a first group of optical signals of different wavelengths respectively input from input ports, and a second output port outputting a pilot signal input from an input port, wherein the first group of optical signals and the pilot signal are transmitted by a common arrayed-waveguide.

Van Doorn does not describe multiplexed signals and a pilot signal with a common arrayed waveguide. Rather, Van Doorn describes (col. 2, lines 64-66) multiple waveguides as the input of multiple optical signals are:

passed through a number k of wave guides of the grating 2. These waveguides have mutually different path lengths between mutually different paths.

Van Doorn further describes the second waveguide as (col. 3, lines 7-11):

a second phased array waveguide device in the form of an arrayed waveguide grating 5 is coupled transversely between the waveguide structures 3 and 4.

Since this feature of claim 3 is not described in Van Doorn, Applicants request the rejection of claim 3 be withdrawn.

**PAGES 3-4: REJECTION OF CLAIMS 4-5, 7, and 9 UNDER 35 U.S.C. §103(a) BY VAN DOORN ET AL. IN VIEW OF IWAOKA ET AL. (U.S.P. 4,893,353)**

Dependent claims 4-5, 7, and 9 are rejected for obviousness by Van Doorn in view of Iwaoka. The Action concedes that Van Doorn does not teach:

the light emitting means which is a wavelength tunable light source having a wavelength locker function, and generates signal light whose wavelength is swept with the bandwidth of the port, or a plurality of light sources.

(Action at page 3).

***Prima Facie* Obviousness Not Established**

**Detection Of Amount of Fluctuation In Filter Characteristics Not Taught, Nor Contended By The Examiner That The Feature Is Described, In The Prior Art**

As provided in MPEP §2143.03 "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." *In re Royka*, 490 F. 2d 1981, (CCPA 1974).

Claims 4 and 7 recite an apparatus wherein "the light detecting means detects the amount of fluctuation in the filter characteristics of the port by detecting the swept signal light."

Claims 5 and 9 recite an apparatus wherein "light detecting means detects the amount of fluctuation in the filter characteristics of the port at which the pilot signal is input, by comparing received light levels between the plurality of light sources."

These features are not taught by either reference, alone or in combination, nor contended by the Examiner that the features are taught. Van Doorn only describes (col. 3, lines 19-22) that the:

amplitude or output power of the output signal in the additional path is determined by a measuring means 6.

Iwaoka only describes (col. 27, lines 35-37) that the:

stability of the wavelength of the output light is not deteriorated at all by fluctuations in circumferential temperature.

**No Motivation Or Reasonable Expectation of Success Stated Within the Cited Art To Combine In The Manner Proposed By The Examiner**

As provided in MPEP §2143 entitled Basic Requirements of a *Prima Facie* Case of Obviousness:

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Examiner contends it would have been obvious to modify Van Doorn with a wavelength tunable light source and generating signal light whose wavelength is swept as taught by Iwaoka "for the purpose of having a high accuracy and high stability in frequency." (Action at page 4).

However, Van Doorn describes (col. 3, lines 2-4) a waveguide device temperature control means where:

an optimum throughput for the wavelength wherefore the signals from the waveguide paths are precisely in phase at the output.

Applicant's submit there is no motivation stated in Van Doorn, or expectation of success to modify the "simple structure" with a wavelength sweeping function.

### **Conclusion**

Since *prima facie* obviousness has not been established, the rejection of claims 4-5, 7, and 9 should be withdrawn.

### **NEW CLAIMS 10-15**

New independent claim 10 (and dependent claim 11-12) recite a wavelength multiplexing optical apparatus including "a light emitter, to generate a pilot signal input to one of the input ports; (and) a light detector, to monitor the pilot signal contained in a wavelength division multiplexed signal output from the output port." New independent claim 13 ( and dependent claims 14-15) recite a wavelength multiplexing optical apparatus including "a light emitter applying the pilot signal; (and) a light detector monitoring the pilot signal output from the second output port."

These, and other, features of claims 10-15 are patentably distinguishable from the cited art, and they are submitted to be allowable for the recitations therein.

### **Conclusion**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,  
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